

Notice of Allowability

Application No.

09/925,194

Examiner

Chat C. Do

Applicant(s)

AWAD ET AL.

Art Unit

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/03/04 and 01/14/05.
2. ☒ The allowed claim(s) is/are 1-22.
3. ☒ The drawings filed on 08 August 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 12/03/04; 01/14/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date attached.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1. Claims 1-22 are allowed.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with William R. McClellan on 05/13/2005.

The application has been amended as follows to clearly define the computer readable medium is tangible media:

Claim 13. A tangible computer readable medium including a program element suitable for execution by a computing apparatus for producing a set of filter coefficients, the filter coefficients being suitable for use by an adaptive filter, said computing apparatus comprising: a) a memory unit; b) a processor operatively connected to said memory unit, said program element when executing on said processor being operative for: receiving a sequence of samples of a first signal; ii. receiving a sequence of samples of a second signal, the second signal including a certain component which is correlated to the first signal; iii. receiving a first set of error characterization data elements associated

to a first set of filter coefficients, the first set of filter coefficients being such that when the first set of filter coefficients is applied by an adaptive filter on the first signal, a first estimate of the certain component in the second signal is generated, the certain component being correlated to the first signal; generating a second set of filter coefficients at least in part on the basis of said first and second signals, the second set of filter coefficients being such that when the second set of filter coefficients is applied by an adaptive filter on the first signal, a second estimate of the certain component in the second signal is generated, the certain component being correlated to the first signal; processing the first signal and the second signal on the basis of the second set of filter coefficients to generate a second set of error characterization data elements associated to the second set of filter coefficients; selecting one of said first set of filter coefficients and said second set of filter coefficients at least in part on the basis of the first set of error characterization data elements and the second set of error characterization data elements, vii. releasing a signal indicative of the set of filter coefficients selected in vi).

Claim 14. A tangible computer readable medium as defined in claim 13, wherein each error characterization data element in the second set of error characterization data elements is associated to a respective frequency band selected from a set of frequency bands.

Claim 15. A tangible computer readable medium as defined in claim 14, wherein said program element when executing on said processor being operative for: a) filtering the first signal on the basis of the second set of filter coefficients to derive a second estimate of the certain component in the second signal, the certain component being

correlated to the first signal; b) removing from the second signal the second estimate of the certain component to generate a noise signal; c) processing the noise signal and the first signal to generate the second set of error characterization data elements.

Claim 16. A tangible computer readable medium as defined in claim 15, wherein said program element when executing on said processor being operative for: a) processing the first signal to derive a first set of spectral values, each spectral value in said first set corresponding to a respective frequency band selected from a set of frequency bands; b) processing the noise signal to derive a second set of spectral values, each spectral value in said second set corresponding to a respective frequency band selected from the set of frequency bands, c) generating the second set of error characterization data elements at least in part on the basis of the first set of spectral values and the second set of spectral values, each error characterization data element being associated to a respective frequency band from the set of frequency bands.

Claim 17. A tangible computer readable medium as defined in claim 16, wherein said program element when executing on said processor being operative for applying a least squares method on the first and second signals to derive the second set of filter coefficients.

Claim 18. A tangible computer readable medium as defined in claim 17, wherein said program element when executing on said processor being operative for computing a standard deviation data element for each frequency band in the set of frequency bands between the first signal and the noise signal to derive the second set of error characterization data elements.

REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance:

The prior art of records fails to disclose or render an obviousness of a filter adaptation unit suitable for producing a set of filter coefficients comprising: a first, second, and third input for receiving samples of first and second signals and a set of error characterization data elements respectively; a coefficient generation unit operatively coupled to first and second input signals and generate a second set of filter coefficients at least in part on the basis of first and second signals; an error characterization unit operatively for processing the first and second signal on the basis of the second set of filter coefficients to generate a second set of error characterization data element; a selection unit; and an output unit as cited in independent claims 1, 7, 13, 19, and 21-22.

The closest found prior arts are Lu (U.S. 6,768,796) and Makinen et al. (E.P. 0872962A2). Lu in view of Makinen et al. also disclose a filter adaptation unit suitable for producing a set of filter coefficients comprising a first, second, and third input for receiving samples of first and second signal and a set of error characterization data element respectively; a coefficient generation unit; an error characterization unit; and an output unit. However, Lu in view of Makinen fail to disclose the structure of the coefficient generation unit and the error characterization unit wherein a coefficient generation unit operatively coupled to first and second input signals and generate a second set of filter coefficients at least in part on the basis of first and second signals; an error characterization unit operatively for processing the first and second signal on the

basis of the second set of lifter coefficients to generate a second set of error characterization data element as cited above.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on 7:00AM to 5:00PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C Do
Examiner
Art Unit 2193


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